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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,125

06/21/2004

John E. Prevost

8482/012

8289

41129

7590

01/31/2008

NEIL J. COIG

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EXAMINER

MARX, IRENE

ART UNIT

PAPER NUMBER.

1651

NOTIFICATION DATE

DELIVERY MODE

01/31/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/710,125

Applicant(s)

PREVOST ET AL.

Examiner

Irene Marx

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/2/08 has been entered.

Claims 6-8 are being considered on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 6-8 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

No basis or support is found in the present specification for the production of "a beer containing at least 10% ethanol by volume". There is no indication in the specification of the production of "a beer" or of a minimum amount of ethanol or of a maximum of 100% as implied by the language now used.

Therefore, this material constitutes new matter and should be deleted.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant fails to set forth the criteria that define a "bacteria, enzymes, fungi or combinations thereof" other than providing a functional definition of being able to convert under fermentation conditions at least a portion of the liquefied mash to any product or precursor thereof and not prevent the fermentation of the liquefied mash to at least 10-% ethanol by volume.. Such functional language describes nothing about the chemical, physical or structural properties of "'bacteria, enzymes, fungi or combinations thereof".

Attention is directed to *General Electric Company v. Wabash Appliance Corporation* 37 USPQ 466 (US 1938), at 469, speaking to functional language at the point of novelty as herein employed.: "the vice of a functional claim exists not only when a claim is 'wholly' functional, if that is ever true, but when the inventor is painstaking when he recites what has already been seen, and then uses conveniently functional language at the exact point of novelty".

Functional language at the point of novelty is further admonished in *University of California v. Eli Lilly and Co.* 43 USPQ2d 1398 (CAFC 1997) at 1406: stating this usage does "little more than outline goals appellants hope the recited invention achieves and the problems the invention will hopefully ameliorate". Claims employing functional language at the point of novelty neither provide those element required to practice the invention, nor "inform the public during the life of the patent of the limits of the monopoly asserted.", *General Electric Co. v. Wabash Appliance Corp.*, at 468.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Lantero *et al.*
U.S. Patent No. 5,231,017.

The claims are directed to a process of fermenting a liquefied mash to produce a product comprising at least 10% ethanol and a non-ethanol product, wherein enzymes, bacteria or fungi are present during the ethanol fermentation process to produce the non-ethanol product and wherein the ethanol is distilled off.

Lantero *et al.* disclose a process of fermenting a liquefied mash to produce a product comprising at least 10% ethanol and a non-ethanol product, wherein thermostable acid fungal protease, a fungal enzyme, is present during the ethanol fermentation process to produce the non-ethanol products peptides and amino acids as well as glycerol and wherein the ethanol is distilled thus separating an ethanol-stream from the whole stillage stream containing at least peptides, amino acids, residual sugars, vitamins, etc. See e.g., Examples, in particular Example 6 and 11 as well as col. 4, lines 3-5. It is noted that any enzyme provided produces precursors of both ethanol and of any by-products.

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kampen *et al.* U.S. Patent No. 5,177,008.

The claims are directed to a process of fermenting a liquefied mash to produce a product comprising at least 10% ethanol and a non-ethanol product, wherein enzymes, bacteria or fungi are present during the ethanol fermentation process to produce the non-ethanol product and wherein the ethanol is distilled off.

Kampen *et al.* disclose a process of fermenting a liquefied mash to produce a product comprising at least 10% ethanol and a non-ethanol product, wherein glucoamylase, an enzyme, is present during the ethanol fermentation process to produce the non-ethanol products glycerol, succinic acid and lactic acid and wherein the ethanol is distilled thus separating an ethanol-stream from the whole stillage stream containing at least peptides, amino acids, residual sugars, vitamins, etc. See e.g., Example 7.

It is noted that any enzyme provided produces precursors of both ethanol and of any by-products

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lantero *et al.* (U.S. Patent No. 5,231,017) taken with Kampen *et al.* (U.S. Patent No. 5,177,008), Lima *et al.* and Starnes *et al.* (U.S. Patent No. 5,501,968)

The claims are directed to a process of fermenting a liquefied mash to produce a product comprising at least 10% ethanol and a non-ethanol product, wherein enzymes, bacteria or fungi are present during the ethanol fermentation process to produce the non-ethanol product and wherein the ethanol is distilled off, and, in particular, wherein cyclodextrin is produced using cyclodextrin glucosyl transferase.

Lantero *et al.* disclose a process of fermenting a liquefied mash to produce a product comprising at least 10% ethanol and a non-ethanol product, wherein thermostable acid fungal protease, a fungal enzyme, is present during the ethanol fermentation process to produce the non-ethanol products peptides and amino acids as well as glycerol and wherein the ethanol is distilled off thus separating an ethanol-stream from the whole stillage stream containing at least peptides, amino acids, residual sugars, vitamins, etc. See e.g., Examples, in particular Example 6 and 11 as well as col. 4, lines 3-5.

Kampen *et al.* disclose a process of fermenting a liquefied mash to produce a product comprising at least 10% ethanol and a non-ethanol product, wherein glucoamylase, an enzyme, is present during the ethanol fermentation process to produce the non-ethanol products glycerol, succinic acid and lactic acid and wherein the ethanol is distilled thus separating an ethanol-stream from the whole stillage stream containing at least peptides, amino acids, residual sugars, vitamins, etc. See e.g., Example 7.

It is noted that any enzyme provided in Lantero *et al.* and Kampen *et al.* produces precursors of both ethanol and of any by-products

The references differ from the claimed invention in that they do not teach the production of cyclodextrin as a by-product using the enzyme cyclodextrin glucosyl transferase.

However, Lima *et al.* teaches an ethanol production process wherein a sucrose or starch-containing feedstock is hydrolyzed under fermentation conditions and wherein the secondary treatment agent cyclodextrin glycosyl transferase (CTGase) is added. See, e.g., page 792, paragraph 2 and Figure 4. Even though the ethanol production is not disclosed as being at least 10%, this amount is not part of the as-filed specification. See, new matter rejection *supra*. In addition, Starnes *et al.* teach the production of cyclodextrin using the enzyme cyclodextrin glucosyl transferase from various starch substrates, and in addition disclose the production of

ethanol from a starch-containing biomass (See, e.g., col. 11, lines 46- Col. 11, lines 5 and Example) wherein alcohol is produced at about 87% by volume. This process would reasonably be expected to produce cyclodextrins at least to some extent.

The process conditions discussed in the references appear to be substantially the same as claimed. However, even if they are not, the adjustment of process conditions for optimization purposes identified as result-effective variables cited in the references, such as the maximization of yield of ethanol, would have been *prima facie* obvious to a person having ordinary skill in the art, since such adjustment is at the essence of biotechnical engineering.

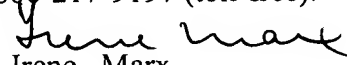
Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the process of Lantero *et al.* and/or Kampen *et al.* by providing the enzyme cyclodextrin glucosyl transferase for the production of cyclodextrin as a by-product in an ethanol fermentation as suggested by the teachings of Lima *et al.* and Starnes *et al.* for the expected benefit of recycling any residues from the production of ethanol as well as maximizing the production of ethanol and other useful products from starch containing biomass, such as grains.

Thus, the claimed invention as a whole was clearly *prima facie* obvious, especially in the absence of evidence to the contrary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irene Marx whose telephone number is (571) 272-0919. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 .

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Irene Marx
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